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Simultaneous Bilateral Spontaneous Pneumothorax

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SPONTANEOUS PNEUMOTHORAX is now a rather common and well understood lesion. It took a long time for clear ideas as to etiology and therapy to emerge. In the hundred years from 1803 to 1903 more than three hundred and fifty articles appeared in the medical literature,[10] and as late as 1931 Palmer and Aaft expressed belief that 80 to 90 per cent of all cases of pneumothorax were caused by tuberculosis.[10] Probably for this reason conservative therapy was the rule. It is still widely used.

About thirty years ago, it began to be recognized that tuberculosis is rarely the cause of spontaneous pneumothorax, and today it is known that in most cases it is secondary to rupture of emphysematous blebs or bullae. Concomitantly, and particularly during the last decade, aggressive surgical treatment has come to be generally accepted as the method of choice for spontaneous pneumothorax of more than minimal degree.

For bilateral spontaneous pneumothorax, prompt surgical intervention (usually closed intercostal drainage) is not only the preferred therapy but often is mandatory. The condition is relatively rare: Adler and coworkers[2] noted that in only five of 95 cases of spontaneous pneumothorax were both sides involved simultaneously. Driscoll and coworkers[5] reported bilateral involvement in two of 56 patients who received surgical therapy for spontaneous pneumothorax. Kraeft[9] reported one case in a series of 32 patients, and Hecker and associates[6] one case in a series of 39. Aust[3] reported 44 cases of spontaneous pneumothorax with only one of the patients having "a history of bilateral pneumothorax" (presumably not simultaneous). In the same communication he also made the remarkably inaccurate statement that "while one-sided pneumothorax is readily tolerated, bilateral pneumothorax is universally fatal." Hyde[8] reported two patients with simultaneous bilateral pneumothorax in a series of 200 cases of benign spontaneous pneumothorax.

Reports of cases of simultaneous bilateral spontaneous pneumothorax are, not surprisingly, infrequent. Reeves and coworkers[11] reported the case of a man 66 years of age in whom simultaneous bilateral pneumothorax was treated sucessfully with emergency simultaneous resection of the involved pulmonary segments. Heichman and associates[7] described the case of a boy of 16 years in whom bilateral pneumothorax and spontaneous mediastinal emphysema occurred as complications of bronchopneumonia. The pneumothorax was treated by bilateral withdrawal of air from the pleural cavities with a needle and relief followed immediately. Adkins and Smyth[1] observed a 22-year-old man with recurrent simultaneous bilateral pneumothorax six months after a similar condition had been relieved by aspiration. Bilateral anterior thoracotomy was performed, with resection of blebs and talc poudrage. The patient made a complete recovery.

Because recurrence is common in spontaneous

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pneumothorax, many attempts have been made to prevent it. Probably the commonest and most successful method is abrasion of the pleural surfaces. Parietal pleurectomy is advocated by some investigators. Promotion of adhesions by instillation of irritating substances such as blood, glucose, talc and kaolin has been employed. Baronofsky[4] did bilateral thoracotomy in 26 patients, usually at one operation. In 25 of the 26, blebs were found in both lungs, and usually surgical removal of the involved areas on both sides was carried out. This is an heroic approach which probably will never be widely followed. In general all these methods have been discarded in favor of thoracotomy with definitive surgical procedure (abrasion or resection of a wedge, segment or lobe) to deal with the complications of pneumothorax, the most common of which is recurrence.

In the case of simultaneous bilateral spontaneous pneumothorax here reported, closed thoracotomy tube drainage brought about rapid and almost complete relief. There was no recurrence and no complication serious enough to warrant further intervention.

REPORT OF A CASE

The patient, a 22-year-old man employed in an automotive repair shop was first observed in the office late in the afternoon of July 28 in dramatic respiratory distress, breathing rapidly through his mouth, and barely able to talk. He had been brought from the shop by his employer. No breath sounds were audible in the right side of the chest. Coarse inspiratory and expiratory rales were audible at the left lung base. The blood pressure was 130/80 mm. of mercury and the heart rate 110. There was no pain in the chest. Spontaneous pneumothorax on the right was suspected and the patient was put in hospital at once. X-ray films of the chest showed 100 per cent pneumothorax on the right—and 30 per cent on the left.

Emergency needle aspiration of the right chest was carried out, and then closed thoracotomy tube drainage of both sides through the second intercostal space. The patient had immediate relief.

Questioned, he recalled having awakened that morning short of breath and with some "tightness" in the chest. However, he had gone to work and kept busy till 4 p.m., when the dyspnea became intolerable. There was no history of previous respiratory difficulty.

The x-ray film taken just before operation was read as: "Bilateral pneumothorax. . . . On the right the lung is compressed against the perihilar and mediastinal border. On the left, adhesions apparently keep the left lung from collapsing completely. . . . We note the presence of bilateral third degree cervical ribs." The reading of films taken the next day was as follows: "Tubes have been placed in each pleural space and there has been partial re-expansion of both lungs, the greatest degree of expansion having occurred at the left base."

The temperature rose to 103° F. on July 29 and antibiotics were prescribed. On July 30 the patient was breathing easily, although there was some pain in the right side of the chest. On August 1 the drain tubes were removed, and on August 2 an x-ray film showed: "Considerable re-expansion of the lung fields bilaterally. The right lower chest area is obliterated by a fluid density which probably represents pleural effusion." On August 4 a film of the chest was reported as showing: "Increased markings on the right which . . . probably represent an infiltration in addition to the pleural effusion. The cardiovascular silhouette . . . is markedly enlarged. This is probably due to pericardial effusion which could be the result of the sudden pressure effect on the pericardium."

Serial electrocardiograms showed only sinus tachycardia. By August 6 the temperature was normal. There were bronchial breath sounds and some crepitant rales at the right base. On August 13 an x-ray film of the chest showed: "No evident mediastinal widening or tracheal shift. When compared with the film of 8/4/61 there appears to have been partial clearing of the infiltrative process at the right base." The patient was dismissed on August 13 and returned to work on August 25.

When observed some eight months later the patient said he felt well. No abnormalities were noted on physical examination. An x-ray film was reported: "There has been definite further expansion of the atelectatic changes at the right base and further resolution of the pleural changes. The left base shows better expansion with the left diaphragm having gone down almost an interspace. The right diaphragm has descended at least half an interspace since the last examination. The cardiovascular silhouette is normal except for some evidence of tension on the pericardial border suggesting pleuropericardial adhesions. No evidence of pneumothorax is seen."

SUMMARY

Simultaneous bilateral spontaneous pneumothorax occurred in a 22-year-old man. There was some "tightness" in the chest but no real pain. The only real complaint was dyspnea, which he noticed on awakening, but did not become so severe as to prevent his working until late afternoon.

Emergency needle aspiration of the right chest, then bilateral closed thoracotomy tube drainage through the second interspaces were carried out. The tubes were removed on the fifth postoperative day.

Low grade fever persisted till the tenth postoperative day. There was moderate pericardial effusion, pleural fluid and atelectasis and probably some infiltration at the right lung base. The patient was dismissed from the hospital after 17 days and returned to work after 44 days. Serial chest x-ray

films have shown on further pneumothorax, almost complete clearing of the changes in the right lung base, reexpansion of the lungs, and absorption of the pericardial effusion.

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